Passive and Active Copper Cables

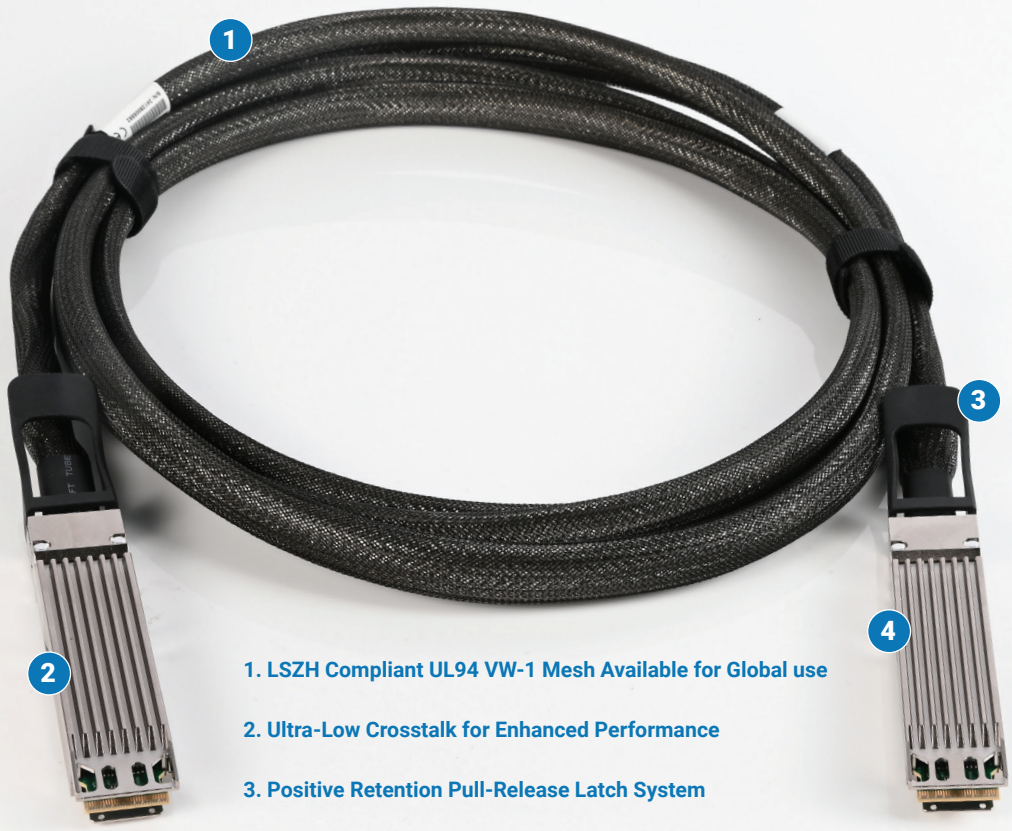
400G PAM4 OSFP Straight Throughs and Breakouts

Regional Availability — Global

Siemon's 400G (50G per lane) PAM4 Ethernet or InfiniBand™ OSFP-FT (Finned Top) passive copper cable DAC[1] assemblies are designed to exceed industry standard performance offering a cost-effective, low latency, lowest-power option for high-speed data center interconnects.

Active Copper Cable ACC[2] assemblies offer longer lengths while still providing a low-power option for these interconnects. 400G PAM4 OSFP DAC applications are available in standard lengths up to 3 meters. ACCs are available up to 5 meters. Both are available in 1:1 straight throughs and 1:2, 1:4, and 1:8 breakouts.

1: DAC – Direct Attach Copper *Passive cable assembly with limited lenghts and lowest power consumption requirement.*
2: ACC – Active Copper Cable *Analog re-driver based active cable assembly with longer lengths than DACs.*



1. LSZH Compliant UL94 VW-1 Mesh Available for Global use
2. Ultra-Low Crosstalk for Enhanced Performance
3. Positive Retention Pull-Release Latch System
4. MSA Compliant Connectors

Breakout Options

Numbered Breakouts

Mesh Sleeve Provides Best-in-Class Cable Routing

STANDARDS COMPLIANCE	OSFP-FT	OSFP-RHS	QSFP-DD	QSFP56	SFP-DD	SFP56
CONNECTOR SPECIFIC	OSFP MSA CMIS	OSFP MSA CMIS	QSFP-DD MSA CMIS	SFF-8636 SFF-8661 SFF-8672 SFF-8679	SFP-DD MSA SFP-DD MIS	SFF-8071 SFF-8402 SFF-8419 SFF-8472
ETHERNET	IEEE 802.3cd					
INFINIBAND	IEEE 802.3cd HDR	IEEE 802.3cd HDR	N/A	IEEE 802.3cd HDR	N/A	N/A

Applications

- Ethernet 400G-BASE CR8
- InfiniBand HDR 400G
- Top-of-Rack
- Rack-to-Rack
- Switch-to-Switch
- Switch-to-Server
- Network Interface Adapter
- Accelerator Cards
- Storage
- Routers
- Servers

PHYSICAL PROPERTIES – CONNECTOR

CONNECTOR TYPE		OSFP-FT	OSFP-RHS	QSFP-DD	OSFP-RHS	QSFP56	OSFP-RHS	QSFP56	SFP-DD	SFP56
LANES UTILIZED		CR8	CR8	CR8	CR4	CR4	CR2	CR2	CR2	CR1
CONNECTOR SIDE(S)		A/B	B	B	B	B	B	B	B	B
CABLE ASSEMBLY CONFIGURATION		1:1	1:1	1:1	1:2	1:2	1:4	1:4	1:4	1:8
POWER CONSUMPTION PER END (Max)	DAC ETHERNET	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W
	DAC INFINIBAND	0.1 W	0.1 W		0.1 W	0.1 W	0.1 W	0.1 W		
	ACC INFINIBAND	1.5 W	1.5 W	1.5 W	0.85 W	0.85 W	0.6 W	0.6 W	0.6 W	0.3 W
	ACC ETHERNET	1.5 W	1.5 W		0.85 W	0.85 W	0.6 W	0.6 W		
SUPPLY VOLTAGE		3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC	3.3VDC
INSERTION FORCE (Max)		40N	40N	90N	55N	60N	55N	60N	40N	18N
EXTRACTION FORCE (Max)		30N	30N	50N	45N	30N	45N	30N	30N	12.5N
RETENTION FORCE (Max)		125N	125N	90N	125N	90N	125N	90N	90N	90N
DURABILITY (Min)		50 cycles	50 cycles	50 cycles	50 cycles	250 cycles	50 cycles	250 cycles	50 cycles	250 cycles
OPERATING TEMPERATURE		0 to 70°C (32 to 158°F)								
STORAGE TEMPERATURE		-40 to 85°C (-40 to 185°F)								

PHYSICAL PROPERTIES – CABLE

JACKET TYPE		MESH/VW-1			LSZH/AWM		
TWINAX PAIRS PER CABLE		16	8	4	8	4	2
CABLE ASSEMBLY CONFIGURATION		1:1	1:2	1:4	1:2, 1:1*	1:4	1:8
CABLE CONFIGURATION		CR8/CR8	CR8/CR4	CR8/CR2	CR8/CR4, CR8/CR8 *	CR8/CR2	CR8/CR1
CABLE O.D.	30AWG	9.5 mm (0.37 in)	5.7 mm (0.22 in)	5.1 mm (0.20 in)	7.5 mm (0.30 in)	6.0 mm (0.24 in)	4.6 mm (0.18 in)
	27AWG	10.7 mm (0.42 in)	7.6 mm (0.30 in)	6.3 mm (0.25 in)	–	–	–
	26AWG	12.1 mm (0.48 in)	8.3 mm (0.33 in)	6.8 mm (0.27 in)	9.8 mm (0.39 in)	7.4 mm (0.29 in)	5.6 mm (0.22 in)
MINIMUM BEND RADIUS		2.2X O.D.			7X O.D.		
JACKET MATERIAL		PET Plastic Mesh			LSZH		
FLAMMABILITY RATING		UL94 VW-1			UL94 V-0 (AWM)		
CONSTRUCTION		Twinaxial			Twinaxial		
SHIELD		Braid/Foil			Braid/Foil		
CONDUCTOR		Solid			Solid		
IMPEDANCE		100± 5 ohms			100± 5 ohms		
GREEN FEATURES		RoHS, Lead-Free and REACH			RoHS, Lead-Free and REACH		

*The 1:1 straight-through LSZH/AWM conventionally jacketed cable assembly is constructed with two parallel 8-pair cables

		DAC MAX LENGTH				ACC MAX LENGTH			
		MESH/VW-1		LSZH/AWM		MESH/VW-1		LSZH/AWM	
		Ethernet	InfiniBand	Ethernet	InfiniBand	Ethernet	InfiniBand	Ethernet	InfiniBand
MAX LENGTH	30AWG	2 m	2 m	2m	2 m	4 m	4 m	4 m	4 m
	27AWG		2.5 m	-	-	5 m	5 m	-	-
	26AWG	3 m	3 m	3 m	3 m	*	*	5 m*	5 m*

* Longer ACC lengths available upon request for specific applications

Ordering Information

400G PAM4 OSFP-FT

(XXX) (XXX) (X) (XX.X) -8 (X) (X)

CONNECTOR TYPE	Side A	Side B	PROTOCOL	CABLE TYPE	LENGTH	JACKET TYPE	JACKET COLOR
F1F F2R F4R F1D F2Q F4Q FSD F8S	OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8) OSFP-FT (CR8)	OSFP-FT (CR8) 2xOSFP-RHS (CR4) 4xOSFP-RHS (CR2) QSFP-DD (CR8) 2xQSFP (CR4) 4xQSFP (CR2) 4xSFP-DD (CR2) 8xSFP (CR1)	-56 = 50G/Lane PAM4 Ethernet -H- = 50G/Lane HDR InfiniBand	P = DAC *Direct Attach Copper*	00.5 = 0.5 m 01.0 = 1.0 m 01.5 = 1.5 m 02.0 = 2.0 m 02.5 = 2.5 m 03.0 = 3.0 m	Z = Mesh/VW-1	B = Black W = White R = Red U = Blue S = Silver N = Orange
				A = ACC *Active Copper Cable*	03.5 = 3.5 m 04.0 = 4.0 m 04.5 = 4.5 m 05.0 = 5.0 m	L = LSZH/AWM	B = Black

Please contact our Technical Sales Group if you require connectivity or cable configurations that are not listed above, for example, a length or color not listed.
Please contact our Technical Sales Group if you require connectivity solutions specifically for NVIDIA or Mellanox active equipment to ensure proper product selection.
Siemon is a provider of InfiniBand™ compliant cabling solutions and is a member of the InfiniBand Trade Association (IBTA).

Part Number Examples:

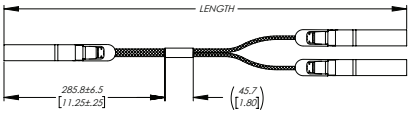
Part Number	Description
F1F-56P01.0-8ZB	DAC, 400G PAM4, CR8/CR8, OSFP-FT, 1m, MESH/VW-1, Black
F2Q-H-P02.5-8ZR	DAC, 400G HDR, CR8/CR4, OSFP-FT/2QSFP56, 2.5m, MESH/VW-1, Red
F4R-H-A05.0-8ZW	ACC, 400G HDR, CR8/CR2, OSFP-FT/4OSFP-RHS, 5m, MESH/VW-1, White
F8S-56P02.0-8LB	DAC, 400G PAM4, CR8/CR1, OSFP-FT/8SFP56, 2m, LSZH/AWM, Black

Notes:

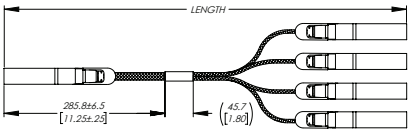
OSFP-FT is OSFP Finned Top.
OSFP-RHS is OSFP Riding Heat Sink (also called Flat Top).
SFP, SFP-DD, and QSFP-DD are not supported by InfiniBand.
RS-FEC is always on.

Straight Through

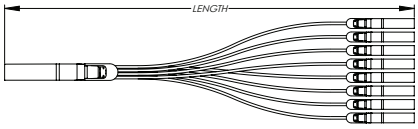
1:2 Breakout

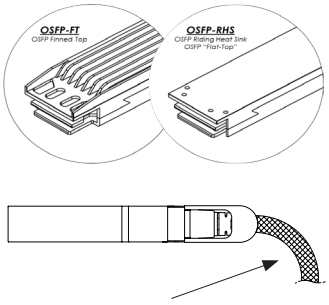


1:4 Breakout



1:8 Breakout





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